

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

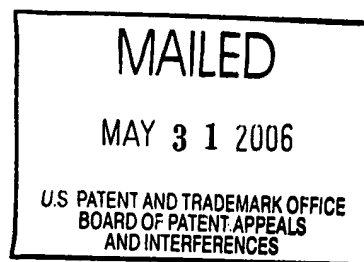
UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte SHIGERU HOSOE and MAKOTO BANNO

Appeal No. 2006-1039
Application No. 09/670,839

ON BRIEF



Before KRASS, BARRY, and BLANKENSHIP, Administrative Patent Judges.

BLANKENSHIP, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134 from the examiner's final rejection of claims 1-8, 10-16, 18, 22-26, and 28-30.

We affirm-in-part.

BACKGROUND

The invention relates to an optical pickup device for light having a central wavelength not more than 500 nm, an optical element requiring particular characteristics for use in the optical pickup device, and a molding die for manufacturing the element. Representative claims 1 and 26 are reproduced below.

1. An optical pickup device for recording and/or reproducing information in an optical information recording medium, comprising:

a light source to emit light flux having a central wavelength not more than 500 nm;

a converging optical system to converge the light flux emitted from the light source onto an information recording surface of the optical information recording medium; and

an optical detector to detect light flux reflected from the information recording surface of the optical information recording medium or the light flux passing through the information recording surface of the optical information recording medium;

wherein the converging optical system or the optical detector comprises at least one optical element and the optical element comprises at least one optical surface having a center-line mean roughness Ra not more than 5 nm.

26. A molding die for an optical element; comprising:

a molding surface,

wherein the molding surface comprises at least one aspherical surface having a center-line mean roughness Ra not more than 5 nm.

The examiner relies on the following references:

Sato et al. (Sato)	5,181,141	Jan. 19, 1993
Ueda et al. (Ueda '530)	5,481,530	Jan. 2, 1996

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Inoue et al. (Inoue)	5,759,457	Jun. 2, 1998
Kashiwagi et al. (Kashiwagi)	6,009,728	Jan. 4, 2000 (filed May 12, 1997)
Hibino et al. (Hibino)	6,119,485	Sep. 19, 2000 (filed Feb. 19, 1998)
Ueda et al. (Ueda '064)	US 6,314,064 B1	Nov. 6, 2001 (filed Oct 15, 1998)
Yamagata et al. (Yamagata) ¹	US 6,504,975 B1 (\$ 371(c)(1),(2),(4) date May 17, 2000)	Jan. 7, 2003
Takanobu ²	11-268920	Oct. 5, 1999

We refer to the Final Rejection (mailed Mar. 31, 2005) and the Examiner's Answer (mailed Oct. 21, 2005) for a statement of the examiner's position and to the Brief (filed Aug. 29, 2005) and the Reply Brief (filed Dec. 20, 2005) for appellants' position with respect to the claims which stand rejected.

Claim 26 stands rejected under 35 U.S.C. § 102 as being anticipated by Hibino.

Claims 1-4, 6, 10, and 25 stand rejected under 35 U.S.C. § 103 as being unpatentable over Ueda '530 and Hibino.

Claim 5 stands rejected under 35 U.S.C. § 103 as being unpatentable over Ueda '530, Hibino, and Inoue.

¹ According to the examiner, the U.S. patent serves as an English translation of WO00/17691. However, it is not clear that WO00/17691 has ever been cited as a reference (i.e., on a form PTO-892 provided to appellants) in this record, or that a copy of WO00/17691 has been provided to appellants.

² Japanese published application, with computer (English) translation provided by the JPO.

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Claims 7 and 8 stand rejected under 35 U.S.C. § 103 as being unpatentable over Ueda '530, Hibino, Inoue, and Sato.

Claims 11 and 12 stand rejected under 35 U.S.C. § 103 as being unpatentable over Ueda '530, Hibino, and Ueda '064.

Claims 13, 14, 18, and 30 stand rejected under 35 U.S.C. § 103 as being unpatentable over Hibino and Sato.

Claims 15, 16, 22, 23, and 24 stand rejected under 35 U.S.C. § 103 as being unpatentable over Hibino, Sato, and Ueda '064.

Claims 28 and 29 stand rejected under 35 U.S.C. § 103 as being unpatentable over Takanobu, Hibino, Kashiwagi, and Yamagata.

Claims 9, 19-21, and 27 have been canceled.

Although both appellants and the examiner indicate that appellants are appealing the final rejection of claim 17, a rejection of the claim has not been set forth in either the Final Rejection or the Answer.

OPINION

Grouping of Claims

We will consider all of appellants' arguments in response to the rejections. To the extent that appellants do not argue differing limitations in claims that are subject to the same rejection, we will select a single claim as representative. See 37 CFR § 41.37(c)(1)(vii) (2005).

Claim 26 -- § 102 over Hibino

Anticipation requires the presence in a single prior art reference disclosure of each and every element of the claimed invention, arranged as in the claim. Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co., 730 F.2d 1452, 1458, 221 USPQ 481, 485 (Fed. Cir. 1984).

The examiner finds that Hibino anticipates instant claim 26. The statement of the rejection refers to column 4, lines 50 through 53, contending that the molding surface of the press mold “meets the desired functional limitation” of the “wherein” clause of the claim. (Answer at 11.) Appellants submit that Hibino fails to disclose a die for an optical element having an aspherical surface and thus fails to anticipate the claim. (Brief at 11.)

The examiner responds that a die disclosed by Hibino (e.g., Figure 3) has an aspherical surface, and further refers to element 19 and the discussion at column 19, line 54 et seq. The examiner notes a curved surface (presumably, referring to the figures), and points to Table 3 at column 22 of the reference. (Answer at 14.) Appellants respond, in turn, that the passages cited by the examiner do not disclose an “aspherical” surface, and that a curved surface is not inherently aspherical. Further, according to appellants, the examiner cannot rely on “some apparently perceived deformity” in Figure 3 as disclosing an aspherical surface, as the figures are not drawn to scale. (Reply Brief at 6.)

We have studied the Hibino reference, with particular emphasis on the material pointed out by the examiner, and we find no disclosure of a molding surface that comprises at least one aspherical surface. Further, the examiner has not explained how the drawings might disclose the claimed element. In any event, we do not find any indication in the written description of the patent that the die shown in Figure 3E comprises an (or at least one) aspherical surface. As appellants note, correctly, we cannot rely on the patent drawings to impart any particular curves or dimensions that are not set forth in the written description. See In re Wright, 569 F.2d 1124, 1127, 193 USPQ 332, 335 (CCPA 1977) ("Absent any written description in the specification of quantitative values, arguments based on measurement of a drawing are of little value."); In re Wilson, 312 F.2d 449, 454, 136 USPQ 188, 192 (CCPA 1963) ("Patent drawings are not working drawings [and arguments are not persuasive when based on a] drawing obviously never intended to show the dimensions of anything.").

Inoue, which has not been applied against claim 26, discloses manufacture of an optical element 50 (Fig. 12) having aspherical surfaces. Col. 4, ll. 46-64. As described in the Background of the Invention (cols. 1-2), the manufacture of aspherical lenses was known to be difficult. The Inoue patent deals with a method for forming a die for production of an optical element having a type of aspherical surface, where formation of the die has detailed requirements to ensure proper manufacture of an optical element having the aspherical surface (e.g., col. 4, l. 65 - col. 5, l. 29; Fig. 1). Similar detailed

requirements for manufacture of an optical element having aspherical surfaces are not found in the Hibino reference.

We are thus in ultimate agreement with appellants. Although Hibino discloses a molding die having a curved surface (e.g., from a base material having a curvature radius of 0.9 mm; col. 21, ll. 34-36), it has not been shown that the curved surface is necessarily an aspherical surface. As such, Hibino standing alone cannot support the examiner's finding of anticipation.³ We cannot sustain the rejection of claim 26 under 35 U.S.C. § 102 as being anticipated by Hibino.

Claims 1-4, 6, 10, and 25 -- § 103 over Ueda '530 and Hibino

The examiner sets forth findings in support of the rejection of representative claim 1 at pages 6 and 7 of the Answer. Appellants submit that the artisan would not have been motivated to combine the references as suggested by the examiner.

Hibino teaches that in optical elements such as optical lenses, small irregularities in the surface of the die can lead to an increase of scattered light, so that lenses with smoother surfaces are desired. Col. 1, ll. 61-65. The base material for the die, after machining, preferably has an average roughness of less than 5 nm. Col. 4, ll. 51-55.

³ To establish inherency, the extrinsic evidence "must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill." In re Robertson, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999). When a reference is silent about an asserted inherent characteristic, such gap in the reference may be filled with recourse to extrinsic evidence. Continental Can Co. v. Monsanto Co., 948 F.2d 1264, 1268, 20 USPQ2d 1746, 1749 (Fed. Cir. 1991).

Microlenses manufactured according to the teachings of Hibino had surface roughness of, at most, 2.0 nm. See col. 22, ll. 1-44.

The references thus support the examiner's finding of a motivation to combine.⁴ The references would have suggested that at least one optical element in the Ueda '530 system have at least one optical surface with the claimed smoothness to avoid the detrimental effects of scattered light.

Appellants submit (Brief at 7) that Hibino "merely discloses" glass substrates for magnetic, "not optical," disks and micro-lenses. However, Hibino discloses press-molding dies for magnetic disk substrates and for optical glass elements (e.g., col. 10, ll. 25-38). The teachings most relevant to the instant claimed invention include those relating to manufacture of an optical glass element (col. 19, l. 52 et seq.).

Appellants also submit there is no suggestion that the microlens disclosed by Hibino could be substituted for the objective lens of Ueda '530. "For example, there is no suggestion that the micro-lens of Hibino et al. provides the numeric aperture required by the optical system of Ueda et al." (Brief at 7.)

The rejection does not propose simple substitution of the microlens described by Hibino for a lens in the apparatus of Ueda '530. Appellants' argument is not persuasive. The test for obviousness is not whether the features of one reference may

⁴ The presence or absence of a motivation to combine references in an obviousness determination is a pure question of fact. In re Gartside, 203 F.3d 1305, 1316, 53 USPQ2d 1769, 1776 (Fed. Cir. 2000).

be bodily incorporated into the structure of another reference. Rather, the test is what the combined teachings of those references would have suggested to those of ordinary skill in the art. In re Keller, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981). It is not necessary that the inventions of the references be physically combinable to render obvious the invention under review. In re Sneed, 710 F.2d 1544, 1550, 218 USPQ 385, 389 (Fed. Cir. 1983).

Appellants also suggest in the Brief and Reply Brief that appellants' specification relates the inventive insight that optical disk readers using light having a wavelength less than 500 nm should have surface roughness of optical elements less than 5 nm. However, Ueda '530 teaches optical disk readers using light having a wavelength less than 500 nm. Hibino teaches that optical elements should have surface roughness less than 5 nm, and the teaching is not specified to be limited to any particular ranges of light wavelength. We consider the combined teachings sufficient to establish a case of prima facie obviousness as presented by the examiner.

We therefore sustain the rejection of claims 1-4, 6, 10, and 25 under 35 U.S.C. § 103 as being unpatentable over Ueda '530 and Hibino.

Claims 5 -- § 103 over Ueda '530, Hibino, and Inoue

Inoue teaches that a lens, suitable for use as an objective lens for an optical pickup device of an optical disc apparatus, can be manufactured by press molding glass or resin. Inoue Abstract; col. 4, l. 45 et seq. The examiner adds Inoue to the

basic combination of Ueda '530 and Hibino to show that although Hibino discloses press molding of a glass optical element, the substitution of resin for glass would have been obvious to one skilled in the relevant art.

Appellants submit that Hibino only discloses glass microlenses and selects molding die materials based upon glass microlenses. Appellants further submit that Inoue fails to suggest microlenses. (Brief at 7-8.)

Appellants have not pointed out any support in the record that the molding die materials described by Hibino are limited to production of glass microlenses. Moreover, pointing out individual deficiencies in the references does not persuade us of error in the case for prima facie obviousness. Nonobviousness cannot be established by attacking references individually where the rejection is based upon the teachings of a combination of references. In re Merck & Co., 800 F.2d 1091, 1097, 231 USPQ 375, 380 (Fed. Cir. 1986) (citing In re Keller, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981)).

We therefore sustain the rejection of claim 5 under 35 U.S.C. § 103 as being unpatentable over Ueda '530, Hibino, and Inoue.

Claims 7 and 8 -- § 103 over Ueda '530, Hibino, Inoue, and Sato

The examiner adds the teachings of Sato to the combination of Ueda '530, Hibino, and Inoue to demonstrate the obviousness of a surface of the optical element

having a reflectance not more than 5% for light having a wavelength of 400 nm (claim 7) or not more than 3% for light having a wavelength of 300 nm to 500 nm (claim 8).

Appellants argue there is no motivation to combine because Sato relates to particular optical elements unrelated to those of Ueda '530 or Hibino. Further, appellants submit that Sato “teaches away” from any optical element disclosed in Ueda '530 or Hibino, because Sato discloses a multi-layered anti-reflection film directly or indirectly on an optical component. (Brief at 8-9.)

Sato describes particular embodiments having reflectance with respect to wavelength within the bounds of the claimed quantities (e.g., Figs. 1 and 2). The teachings relating to avoidance of surface reflection in optical elements is not limited, however, to the particular embodiments disclosed. See, e.g., col. 1, ll. 39-55.

“A reference may be said to teach away when a person of ordinary skill, upon [examining] the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant.” Para-Ordnance Mfg. v. SGS Importers Int'l, 73 F.3d 1085, 1090, 37 USPQ2d 1237, 1241 (Fed. Cir. 1995) (quoting In re Gurley, 27 F.3d 551, 553, 31 USPQ2d 1130, 1131 (Fed. Cir. 1994)). Even assuming that the proposed combination would require application of a multi-layered anti-reflection film to an optical component, appellants have not shown that Sato warns the artisan against applying such a film to lenses such as those described by Ueda '530 or Hibino. Cf. Para-Ordnance, 73 F.3d at 1090, 37 USPQ2d at 1241: “That the Browning Hi-Power does not have a converging

frame does not require a finding that it 'teaches away.' While it does not teach convergence, there is nothing about the Browning Hi-Power to warn a person of ordinary skill against using convergence."

We consider the combined teachings sufficient to show prima facie obviousness of the claimed subject matter as a whole. The evidence is sufficient to shift the burden to appellants to demonstrate the ultimate conclusion to be in error, by showing, for example, as postulated at page 5 of the Reply Brief, that the combination would require application of an anti-reflection film to a lens and the resulting lens would not have the claimed surface roughness. However, since we are not persuaded otherwise by argument or evidence adduced by appellants, we sustain the rejection of claims 7 and 8 under 35 U.S.C. § 103 as being unpatentable over Ueda '530, Hibino, Inoue, and Sato.

Claims 11 and 12 -- § 103 over Ueda '530, Hibino, and Ueda '064

Appellants argue there is no motivation to combine Ueda '530 and Hibino to achieve the claimed combination of (base) claim 1, and that Ueda '064 fails to cure the deficiencies of the rejection applied against the claim. As we are not persuaded of error in the rejection applied against base claim 1, we are not persuaded of error in the rejection of claims 11 and 12. We sustain the rejection of claims 11 and 12 under 35 U.S.C. § 103 as being unpatentable over Ueda '530, Hibino, and Ueda '064.

Claims 13, 14, 18, and 30 -- § 103 over Hibino and Sato

Instant claim 13 is a broader version of claim 8, which depends from claim 1. We are not persuaded of error in the rejection of representative claim 13 for the same reasons we are not persuaded of error in the rejection of claim 8. We sustain the rejection of claims 13, 14, 18, and 30 under 35 U.S.C. § 103 as being unpatentable over Hibino and Sato.

Claims 15, 16, 22, 23, and 24 -- § 103 over Hibino, Sato, and Ueda '064

Appellants do not submit separate arguments in defense of claims 22, 23, and 24. We sustain the rejection of those claims.

We do not sustain the rejection of claims 15 and 16, each of which requires an optical element having an aspherical surface. The rejection asserts, without foundation in this record, that “[a]s known, objective lenses are aspherical.” (Answer at 10.) Inoue suggests (e.g., col. 1, l. 25 et seq.) that an objective lens in an optical head for an optical disk should have an aspherical surface, but does not teach that all objective lenses “are aspherical.” Moreover, Inoue has not been applied against instant claims 15 and 16.

We therefore sustain the rejection of claims 22, 23, and 24 under 35 U.S.C. § 103 as being unpatentable over Hibino, Sato, and Ueda '064, but do not sustain the rejection as to claims 15 and 16.

Claims 28 and 29 -- § 103 over Takanobu, Hibino, Kashiwagi, and Yamagata

Appellants seem to refer to admitted individual deficiencies of the references applied against claims 28 and 29. Appellants submit that Kashiwagi “fails to disclose a super precision lathe or the combination of a super precision lathe and a center-line mean roughness Ra not more than 5 nm.” (Brief at 12.)

Appellants’ argument may be read as alleging that Kashiwagi fails to disclose the combination of a super precision lathe and a center-line mean roughness Ra not more than 5 nm, which is not disputed. If appellants mean that Kashiwagi fails to disclose a super precision lathe, appellants have not shown why the references fail to suggest using a super precision lathe within the ambit of instant claim 28; i.e., why the recitation of a “super precision lathe” might require something different from the disclosures that are applied.

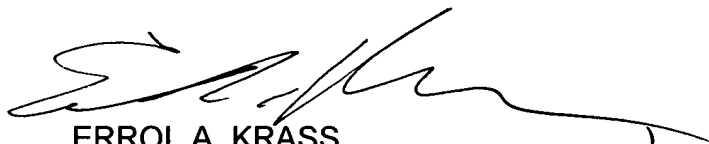
We are not persuaded of error in the rejection of claims 28 and 29 under 35 U.S.C. § 103 as being unpatentable over Takanobu, Hibino, Kashiwagi, and Yamagata, and thus sustain the rejection.

CONCLUSION


The rejection of claim 26 under 35 U.S.C. § 102 is reversed. The rejection of claims 1-8, 10-16, 18, 22-25, and 28-30 under 35 U.S.C. § 103 is affirmed with respect to claims 1-8, 10-14, 18, 22-25, and 28-30, but reversed with respect to claims 15 and 16. The examiner's decision is thus affirmed-in-part.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a). See 37 CFR § 1.136(a)(1)(iv).

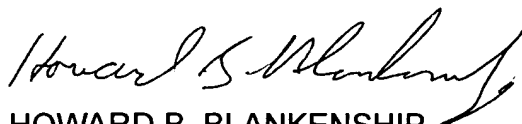
AFFIRMED-IN-PART



ERROL A. KRASS
Administrative Patent Judge



LANCE LEONARD BARRY
Administrative Patent Judge



HOWARD B. BLANKENSHIP
Administrative Patent Judge

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